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For: System For Loading A Heat Sink Mechanism Independently Of Clamping Load On Electrical Device

CLAIMS

1 1. A system for coupling a heat sink to an electrical device independently of a
2 clamping member that is used to place a coupling force between one or more electrical devices
3 and a substrate to which the one or more electrical devices are to be electrically connected, the
4 system comprising:

5 a clamping member adapted to push the one or more electrical devices against the
6 substrate, to assist in electrical connection between the one or more electrical devices and the
7 substrate, the clamping member defining a through-hole leading to each electrical device;

8 a heat-conducting member in a through-hole of the clamping member and adapted to
9 thermally contact the electrical device to conduct heat into or out of the electrical device; and
10 a heat sink in thermal contact with the heat-conducting member.

1 2. The coupling system of claim 1 in which the heat-conducting member comprises
2 a post with an enlarged end that contacts the electrical device.

1 3. The coupling system of claim 2 in which the through-hole in the clamping
2 member in which the heat-conducting member is located defines a shoulder between the heat
3 sink and the electrical device, the shoulder defining a through-hole width that is less than width
4 of the enlarged end of the post, to allow the post to move within the through-hole yet prevent the
5 post from being withdrawn from the through-hole.

1 4. The coupling system of claim 1 further comprising a resilient member located
2 within the clamping member through-hole in which the heat-conducting member is located, for
3 urging the heat-conducting member into thermal contact with the electrical device.

1 5. The coupling system of claim 4 in which the resilient member comprises a coil
2 spring located around the heat-conducting member.

1 6. The coupling system of claim 4 in which one end of the resilient member contacts
2 the heat-conducting member and the other end contacts the clamping member such that the
3 resilient member is compressed when the clamping member is moved toward the substrate.

1 7. The coupling system of claim 1 in which the heat-conducting member protrudes
2 from the clamping member.

1 8. The coupling system of claim 7 in which the heat sink is located outside of the
2 clamping member

1 9. The coupling system of claim 8 in which the heat sink directly contacts the heat-
2 conducting member.

1 10. The coupling system of claim 7 in which the heat-conducting member and heat
2 sink are integral.

1 11. The coupling system of claim 1 in which the clamping member directly contacts
2 the electrical device.

1 12. The coupling system of claim 11 in which the clamping member directly contacts
2 some but not all of the electrical device upper surface.

1 13. A system for coupling a heat sink to an electrical device independently of a
2 clamping member that is used to place a coupling force between one or more electrical devices
3 and a substrate to which the one or more electrical devices are to be electrically connected, the
4 system comprising:

5 a clamping member adapted to push the one or more electrical devices against the
6 substrate, to assist in electrical connection between the one or more electrical devices and the
7 substrate, the clamping member defining a through-hole leading to each electrical device;

8 a heat-conducting post in a through-hole of the clamping member with an enlarged end
9 adapted to thermally contact the electrical device to conduct heat into or out of the electrical
10 device;

11 a heat sink in thermal contact with the heat-conducting member; and
12 a spring member in the through-hole in the clamping member adapted to be compressed
13 between the clamping member and the enlarged end of the post, to assist in thermal contact
14 between the enlarged end and the electrical device.

1 14. The coupling system of claim 13 in which the spring comprises a coil spring
2 located around the post.